CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

University of California Medical School
DEC 15 1919
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To promote the health of children, to aid in the establishment of baby clinics, to give advice to prospective mothers—these are some of the things that the new Bureau of Child Hygiene will accomplish.

SEPTEMBER, 1919

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PARASITOLOGY IN 1918–1919.

Report of the Division of Parasitology of the California State Board of Health for the Year Ending June 30, 1919.

By J. Daley McDonald, Assistant Parasitologist.

INTRODUCTORY.

Personnel. During the year the Division of Parasitology of the California State Board of Health has been under the direction of Professor Wm. W. Cort, Ph. D., Consulting Helminthologist. J. Daley McDonald, Assistant Parasitologist, has been responsible for the conduct of the laboratories, including the work of routine diagnosis and the experimental problems. The field work, mainly concerned with sanitary inspections and the collection of fecal specimens for examination, has been in the charge of A. M. Bean, Field Agent. In addition, three laboratory assistants, two of whom were experienced in diagnosis of intestinal protozoa and intestinal helminths, have been employed as occasion demanded.

Equipment. Some additional equipment was needed in conjunction with the work of investigation in the Delta region. In most places where is was desirable to establish headquarters no adequate accommodations were available. To overcome this difficulty a good houseboat, including the furnishings and two skiffs, was purchased at an expense of $1,000. This houseboat provides living quarters for three persons, besides ample laboratory space. The entire front deck has recently been screened so that the work may be continued throughout the summer without danger from mosquitoes. A description of the houseboat "Josephine" and of its serviceability has been published in the Monthly Bulletin of the California State Board of Health (Vol. 14, No. 10, pp. 347–8, April, 1919). Plans have been completed by the Bureau of Sanitary Engineering for the installation of a filtration plant which will render the river water safe for household use on the houseboat and which will serve at the same time as a model plant for demonstration purposes. In May an outboard motor (Ferro) was purchased and attached to the larger skiff. This has furnished a ready, though not rapid, means of transportation.

ACTIVITIES DIRECTLY CONCERNED WITH PUBLIC HEALTH.

Hookworm Campaign. The problem of hookworm control, which was the main activity of the Division of Parasitology throughout the previous two years, was continued during the first few months of this year. At the end of that time, however, conditions in the gold mines of the Mother Lode had become such, through examination of miners and treatment of those infected, and through persistent attention to matters of mine sanitation, that it seemed that further attention to this district would be unnecessary for a year at least. A survey of copper mines was then instituted. Routine examinations were made of the men employed in four large copper mines in Shasta County. A total of 350 examinations were made. The percentage of infection was exceedingly low (less than 2 per cent), and the history of every infected man gave either positive proof or strong evidence that the disease had been contracted elsewhere than in the copper mines. Samples of drainage water were collected from these mines and sent to the laboratory for use in determining the possibility of hookworm becoming endemic in copper mines. The account of these experiments is given below. (See Research Activities.)

Upon his return from Shasta County (September), the field agent made inspection of toilet facilities in the gold mines of Amador County. He reported great improvement and that all mine toilets were in useable condition and that there was practically no evidence of soil pollution. He also reported the closing of many mines, due to labor shortage, which was acting as an automatic check on the spread of the disease.

Delta Project. The main activities of the Division of Parasitology for the year have been concerned with the investigation of conditions of parasitism among the inhabitants of the Delta region of the state. Owing to many almost insurmountable obstacles and unavoidable delays, nearly three months were consumed in getting the project under way. The chief problems were lack of living accommodations and inadequate facilities for transportation, which were eventually supplied by the purchase of the houseboat and the motor mentioned above. During the remainder of the year, 510 individuals from the region have been examined for intestinal worms and 280 of the number for intestinal protozoa, a total of almost 800 examinations. The following is the tabular result of these examinations:

	Total	Per cent of infection
Total examinations for intestinal worms	510	
Infections with—		
Trichuris trichura	88	17.3
Hookworm	36	7.1
Ascaris lumbricoides	13	2.6
Clonorchis siensis	10	2.0
Trichostrongylus orientalis	7	1.4
Oxyuris incognita	3	0.6
Hymenolepis sp.	1	0.2
Total examinations, intestinal protozoa	280	
Infections with—		
Giardia intestinalis	18	6.4
Entamœba coli	15	5.4
Entamœba nana	10	3.6
Entamœba histolytica	4	1.4

It is planned to continue this project through the year 1919–1920, or until such time as sufficient data is obtained from which to draw conclusions as to the conditions in that region.

Protozoan Dysenteries. This problem has been approached from two different viewpoints. In the first place, a considerable amount of information regarding incidence and histories of cases of intestinal protozoa was secured from hospitals and physicians, in answer to a circular letter sent out from the Division of Parasitology. All cases reported were tabulated with especial reference to when, where, and how, the particular infection took place. One-third of the cases reported were contracted in California. An article is now completed for publication which contains the complete data, and places especial emphasis on a discussion of the unique conditions in California which facilitate the introduction and spread of protozoan dysenteries. The second phase of this project was a direct outgrowth from the studies on Balantidium coli made by J. D. McDonald, from which it was determined that the percentage of pigs infected is very high (probably 85 per cent). Since infection of human beings is generally considered to be from that source, an examination of men employed in the abattoirs of the San Francisco Bay region in the actual dressing and handling of pork, especially entrails, was instituted. Altogether twenty-four men were given one examination each, but no cysts of Balantidium coli were detected. However, since the voiding of cysts is periodic, a single examination is wholly inadequate to detect infection.

Division Series. Early in the year it was decided to establish a reprint series, in which should be placed all publications contributed by the Division of Parasitology. This has served the purpose of systematizing the contributions to public health problems and made them readily available for those who desire them. Up to the present time about ten papers have been entered in this series.

VOLUME I.

No. 1. C. A. Kofoid and M. A. Barber. “A Rapid Method for Detection of Ova of Intestinal Parasites in Human Stools.” Jr. A. M. A., Nov. 9, 1918.

No. 2. C. A. Kofoid et al. ‘The Treatment of Giardiasis in Rats with Arseno-benzol.” Jr. Med. Research, N. S., Vol. 34, No. 3, Jan., 1919.

No. 3. W. W. Cort. “A Mine Latrine.” Mining and Scientific Press, Feb. 1, 1919.

No. 4. C. A. Kofoid and A. W. White. “A New Nematode Infection of Man.” Jr. A. M. A., Vol. 72, pp. 567–569, Feb. 22, 1919.

*No. 5. C. A. Kofoid. “A New Nematode Ovum from Man.” (Paper accepted but not yet published.)

No. 6. C. A. Kofoid et al. “Intestinal Parasites in Home Service and Overseas Troops of the U. S. Army, With Especial Reference to Amoebic Dysentery.” Jr. A. M. A., Vol. 72, No. 24, June 14, 1919.

*No. 7. C. A. Kofoid. “Criterions for Differentiating Entamoeba Histolytica from Other Intestinal Infections.” (Not yet published.)

No. 8. W. W. Cort and J. D. McDonald. “Amoebic Dysentery in California.” (In press.)

No. 9. C. A. Kofoid. “Structure and Significance of the Iodine Cysts of Human Feces.” (Not yet published.)

*No. 10. R. W. Nauss. “Endemicity of Hookworm in the Gold Mines of California.” (Not yet published.)

Miscellaneous Examinations. Under this caption are recorded all examinations made for physicians or other individuals throughout the state. The total number of these examinations is about one hundred. This is a considerable increase over previous years, but as yet physicians are not availing themselves of the services of the Division of Parasitology as much as is desirable.

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*Titles of these unpublished articles are subject to revision before publication.

Complete Summary of Examinations. Fecal examinations constitute a considerable part, but by no means all, of the work of the Division, so a summary of these examinations is not a report on the whole of its accomplishments. The following table gives a summary of the entire fecal examinations made during the year for both intestinal worms and intestinal protozoa.

	Positive	Negative	Total
Examinations for intestinal worms—			
Miscellaneous		800	800
Trichuris trichiura	92		92
Hookworm	59		59
Ascaris lumbricoides	15		15
Clonorchis sinensis	9		9
Trichostrongylus orientalis	8		8
Oxyuris incognita	5		5
Strongyloides stercoralis	2		2
Oxyuris vermicularis	1		1
Taenia saginata	1		1
Hymenolepis nana	1		1
Total examinations for intestinal worms	193	800	993
Examinations for intestinal protozoa—			
Miscellaneous		293	293
Entamœba coli	21		21
Giardia intestinalis	19		19
Entamœba nana	6		6
Entamœba histolytica	4		4
Chilomastix mesnili	1		1
Total examinations for intestinal protozoa	51	293	344
Total examinations for both worms and protozoa	244	1,093	1,337

Research Activities. In the work of coping with matters of sanitation and public health, problems will inevitably arise, the solution, or at least the investigation, of which is essential to the continuance of the work. Such problems of research have demanded a considerable part of the available resources of the Division of Parasitology during the past year. It is sufficient for this report to enumerate some of the more important problems on which work has been done, omitting results, for when results have been of value they either are already, or soon will be, available in published articles. Two problems grew out from the work on hookworm in the mines of the state. The first was concerned with the effectiveness of salt as a disinfectant in mines. This involved a large amount of laboratory experimentation. It was not only necessary to use salt solutions of varying concentration, but also to study their effect on the egg and the several larval stages of the worm in order to determine when the salt would be most effective. The second problem was concerned with the effect of drainage waters from various copper mines on the growth of the hookworm in its free-living stages. It was hoped in this way to discover whether the water impregnated with mineral salts served as an automatic check on the spread of hookworm in copper mines. This series of experiments necessitated the collection of large numbers of water samples, besides laboratory experimentation much like that required in the salt problem. In this connection the resistance of hookworm larvæ to drying was given some attention.

The vital problem of determining whether any of the snails of California can serve as intermediate hosts of *Schistosoma japonicum* or for *Clonorchis sinensis,* has been recently undertaken. Work on Schistosoma is already well under way. This question is involved in the problem of Oriental immigration, since these diseases are now in Class A, *i. e.,* are excludable. It is also vital to the state to know whether their spread is possible, for both diseases are already present within its boundaries.

Prospect. A glimpse at the program for the immediate future will be of value here, though deviation from it may be required at any time by special circumstances. It is planned to continue actively the hookworm campaign and the Delta project. The further continuance of the latter is fully justified by the findings of the past year. It is intended to call the attention of physicians and public health people throughout the state to the function of the Division of Parasitology and its availability for diagnosis of intestinal parasitic diseases. It is highly desirable that the work on schistosomiasis and clonorchiasis be carried to completion.

Several new projects must be taken up during the present year. One of these is the examination of Mexicans, especially children, with regard to the introduction and spread of *Hymenolepis nana* and possibly protozoan dysentery. The truck gardens in certain sections of the state are looked upon with suspicion regarding the use of human excreta for fertilization, and the investigation of this problem comes within the field of the Division of Parasitology. A general educational and publicity campaign has been outlined and it is hoped will be inaugurated in the near future. Some new research work must be initiated, especially along the lines of developing more rapid methods of protozoan diagnosis and of studying critically the means of spread of protozoan dysenteries, which are already a very real problem within the state.

At no time have the needs for meeting these problems been more urgent. Post-war conditions, viz, the returning soldiers, increased immigration from Mexico and the Orient (unless marked restriction is instituted), increased travel especially to Oriental countries, the great impetus to agricultural pursuits with concomitant increase in irrigated areas—all of these will accentuate the need for greater attention to matters of public health.

FROM A SOCIAL SERVICE WORKER'S NOTE BOOK.*

He had slept out anywhere for the last few nights. He looked gaunt and starved and had the pallor of extreme illness.

His despair at what he had done was eating his life away and their lack of money and hopes was pathetic.

They had acute symptoms of gonorrheal infection and were in a listlessly apathetic state. I carefully drew from them the history of things in general. He had "stepped out" while she was nursing their two-months-old baby and now he wanted to die.

I realized that they must be imbued with the germ of hope if their cure was to be accomplished, and after a visit wherein I assured the positive cure that was most probable, told them of my faith in their good sense, and with a promise to procure light work for him, I left. They were at the clinic that night and after a lapse of a few days I called again to see how they progressed. "They wanted to get well, yes, but the terrible crowd of women, the dirty old building. How did she know her baby might not get something, and she had decided that she would go to a private physician." I was patient, listened to all she had to say, wanted to know the physician's name, how much money they had, how essential it was to attend regularly and so forth. Also told her we at the clinic were the ones to be afraid—that she was the menace; we were willing to take a chance to get her well, that our physicians were the best in the city, and I wanted her under their care, as I was interested. She finally promised to come back, and that afternoon I procured him a job at $65 a month. It was not much, but it gave the boy a renewed hope, and after that they were first at the clinic, as eager as I was to have them get well. In another month had him promoted to a better position, with daylight working hours, and looking fairly fit.

We have discharged them as well from the clinic, and with his new position of $150 a month, free from disease, life looks good to them and I am enriched.

* * *

She came to our clinic because she had read the modest clinical poster in the lavatory of the laundry where she worked. She was young, not more than twenty, and pretty. Her blood examination proved a three plus and a smear proved a positive. Her hair was falling out, she was not well, but she had a clinging, dependable way that was rather sweet. She attended clinic a second time in the same week and confided to me that her suitcases were being held in an apartment on Pico Street, and she was unable to procure them as she owed six dollars on them for back rent. She made only ten dollars a week at the laundry and it took that to exist. I visited the apartment house the next day and realized from the voluble landlady that Pearl, her kith and kin, also my precious self, were of small moment to the irate lady, and to get those suitcases six dollars must be very much in evidence. I also learned that she was only the "hostess" as Mr. G., the owner, lived in another city. Made a trip to see the gentleman the next day and persuaded him how big the money looked to the girl and how small it really was.

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*Venereal disease clinics in San Francisco, Los Angeles, Oakland, San Diego, Sacramento, Pasadena, San Bernardino, Stockton and San Jose employ social service workers who are under the supervision of the social service director of the State Board of Health. These extracts from the reports of one of these workers are published here in order to show the character of the work accomplished. Not every patient is amenable to the efforts of the social service worker, but the results in cutting off sources of infection, to say nothing of the rehabilitation of patients, amply justify the expenditure of time and money.

Delivered the cases to the house where Pearl roomed, and a sloven who claimed to be the landlady swept dirt from extremely dirty porch while I explained. A telephone message came from the girl that night saying how happy she was to get her things and that she would attend clinic now and do the consistent things to get well. She did not come and after another week called again. "She would come that night, sure." Another week and I left word that it was a quarantinable disease and by not attending clinic she was subject to the law. Still no Pearl. I called up often on the telephone but she was always out. The family met me always and poor Pearl got more than her share. Finally I told Mrs. Smith that the girl needed treatment and as she used the same towels and slept with the other girls of the family she was a menace. She promised to help me get Pearl to Los Feliz Hospital voluntarily. She was glad I told her of the girl's condition, as she had six girls and the grandchildren all to be considered. She would help. Pearl called that night to find out why she was a "maniac" with the children and upon racking my brain decided to explain the word menace to her.

I took up the matter with my superiors and was advised to *go slow.* Placed her in the hands of the Metropolitan Squad and they decided that since she worked they could not "vag" her, and told me to make an appointment with her and they would arrest her on my say so. Again I was told not to do so, and upon going into the matter with some of the city officials decided our stand was too flimsy and dropped the case in disgust.

Some weeks later Mrs. Smith rang up at midnight to say Pearl was leaving town and hoped I would get her into the hospital before she got away. She would help me get her. "Come early, as she intends going before noon." Had a conference with Judge ———, also with the city prosecutor, and after an hour's wait he decided if I took Dr. ——— I might bring her in. A few minutes later we started, and with a police officer added we felt this was her chance. On San Pedro Street an ambitious driver ran into us and demolished one of our wheels. Patched things up and once more on our way. The sloven met us on the porch and supplemented by a son told us Pearl had gone. "I had promised to come early;" "I had said the law was with me;" "She wanted to see the girl get well;" "It was a shame the law was slow," and so on. I weakly suggested that she had been the spoke in my wheel in shielding and lying about Pearl, but she was so hurt at the idea and so voluble in her disappointment that we retreated to the broken machine and decided I was the "bunk."

Next day we learned that Pearl had been hiding under the bed all the while.

* * *

Two children in a small country town were reported as possible gonorrhea cases. I called up every department in the city to procure a machine to make the trip, and it was 2 o'clock the next afternoon before I was able to get one and only then a one-seat Ford with driver and myself and two children to bring back. Two miles beyond the town we found a two-room shack with a horde of children and filth untold. "Ma" was cutting fruit a mile beyond the house and I waded through a wonderful world of apricots. Vast sheds with a horde of workers met my sight. Would like to say now that the fruit was unwashed, cut up by dirty Mexicans and diseased workers of every caliber, many from our own clinics. It was put in the sun to dry, the heat turning the juice from the fruit into a heavy syrup hiding the dirt deep down in the golden cups. The question in my mind was if it were possible to ever say it was clean enough to eat.

Found the mother, and while I explained my errand she cut apricots into huge chunks and stuffed them rapidly into her mouth. She'd ask "Pa," and once again with the mother I started across the field to the potato patch where a tobacco stained man answered to the name of "Pa." He listened without comment, then "whatever Ma says," and back to the shack, where, upon examining them all, I decided two of them must be under attention and gave them a hasty dip to get off the outside dirt while the rest of the family procured a small skirt and a dress apiece from an overcharged trunk. The children all wanted to come with me and we left the two larger girls in tears.

Later, in trying to find cause of infection, brought the seventeen-year-old boy in, and as the County Hospital could find no clinical evidence of disease sent him back the same evening. Finally decided with the Juvenile Hall ladies that mother should be examined and a probation officer from the Hall volunteered to bring in all the other children. She was examined and found to have a chronic case of gonorrhea, while one more child was found in an infected state. The referee of the Juvenile Hall had all the children detained there and advised me to get mother under treatment. Prevailed upon the mother to take treatment and, with many tears, finally got her in the isolation hospital.

Still had to consider the father, and as he had vowed to shoot me on sight I decided I was glad that he lived so far away. Hope to have them all in good shape soon and with the help of the ladies in the home town mean to get them started in housekeeping with a better house and considerable more furniture. So time will tell; meanwhile the family will at least have a chance.

California's Winning Fight on Typhoid Fever.

Death Rates Per 100,000 Population, 1906-1918.

Year	Number of deaths	Death rate per 100,000 population	Year	Number of deaths	Death rate per 100,000 population
1906	657	**32.3**	1913	436	**16.3**
1907	558	**26.3**	1914	376	**13.6**
1908	540	**24.4**	1915	276	**9.7**
1909	461	**20.0**	1916	206	**7.1**
1910	477	**19.9**	1917	225	**7.4**
1911	444	**17.8**	1918	197	**6.3**
1912	454	**17.6**			

VITAMINES AND THEIR SYNONYMS.

By M. E. Jaffa, M.S., Consulting Nutrition Expert, California State Board of Health.

During the last seven years much work has been done by the leading nutrition investigators of the world in connection with the study of vitamines and their role in nutrition. The question the layman naturally asks is, What is a vitamine?

It had been known for many years that there exist in fresh food some substances which are essential for the prevention of scurvy. These substances are called by some *antiscorbutic substances.* Beriberi is another deficiency disease, but it is a disease of the nerves and can be prevented by the use of a diet adequate in *antineuritic* substances. So that we have two substances, antiscorbutic and antineuritic substances, present in foods which are evidently curative for these two diseases.

Naturally, there was a desire on the part of many investigators to quantitatively separate these substances from the foods. Funk and his collaborators, however, devoting much time and energy to the problem, succeeded in 1912 in devising a method which led to a product of high physiological activity and curative powers. To this preparation Funk gave the name vitamine, from *vita* (life) and amine, meaning a substance essential to life.

It should be said that these unknown substances have no direct relation to the ordinary dietary essentials such as protein, fats, carbohydrates and mineral matter.

VARIETY OF DESIGNATIONS.

Osborne and Mendel, also McCollum and others, found that a diet of purified food substances, that is, purified protein, fat, such as lard, carbohydrates and mineral salts, was inadequate for the promotion of normal growth and development in rats. When butter fat was substituted for lard in an otherwise satisfactory diet, the rats developed normally. The unknown dietary essential furnished by the butter was termed by some vitamines, and again, by others, growth-promoting substances.

The three terms, antiscorbutic-vitamine, antineuritic-vitamine, and growth-promoting substances, are not the only designations that have been proposed or suggested. Others are "growth substances," "growth determinants," "food hormones," "accessory food substances," "dietary essentials," "fat-soluble A" and "water-soluble B."

McCollum and his associates found as a result of their investigations that there were, at least, two kinds or groups of these so-called vitamines: one soluble in fat and the other soluble in water. Both are essential to normal growth and development and they, therefore, suggested the provisional names "Fat-soluble A" and "Water-soluble B," because of the respective solubilities.

McCollum, in his latest work, "The Newer Knowledge of Nutrition," well states that the other terms mentioned are really misnomers.

"The word accessory carries the idea that the substances in question are dispensable. Condiments may be desirable, but they can be dispensed with, and are properly designated as accessory food substances. An indispensable food complex can not properly be designated by this term. 'Vitamine' is objectionable, because the prefix *vita* connotes an importance of these dietary essentials greater than other equally indispensable constituents of the diet, such as certain of the amino-acids which play a role in protein metabolism. The ending *amine* has a definite and specific meaning in organic chemistry, being used to designate a compound derived from ammonia by the substitution of one or more of its hydrogen atoms by various organic radicals. Any substance to be properly designated as amine must contain the element nitrogen. There is no evidence that either of these unidentified dietary essentials is an amine, and, indeed, fat-soluble A probably contains no nitrogen, for it is especially abundant in butter fat, and that latter is practically free from this element.

CHEMICAL MESSENGERS.

" 'Food hormones' is an objectionable term, because all the evidence available indicates that both the fat-soluble A and water-soluble B are never-failing constituents of the cells of both animal and plant tissues. They have nothing in common with the hormones. The latter are chemical substances which are formed in the body by special tissues and contributed to the blood stream, where they cause the stimulation of certain other tissues to physiological activity. They are chemical messengers, while the substances under discussion are food complexes, apparently necessary for all the living cells of the body. It has been pointed out that the content of both of these two dietary essentials appears to run parallel to the content of cellular elements in the foodstuffs, regardless of their source.

" 'Growth substances' and 'growth determinants' are not good terms for the reason that the substances in question are just as essential for the maintenance of a full-grown animal in a state of health as they are for the support of growth in the young. Furthermore, in actual experience, rations are found in which the content of one or more essential amino-acids are present in such amounts that they form the limiting factor which determines the *value* of the rations. It is easy to prepare a food mixture in which any one of the eight or nine essential inorganic elements which the diet must furnish will be so low as to prevent the growth of an animal, even though the food is otherwise of satisfactory character. In one case the addition of a suitable sodium compound, or in another a calcium or a potassium salt might induce growth, and these elements might, with just as much propriety, be called 'growth determinants' as to apply this term to one of the still unidentified food essentials. The term might fittingly be applied to any of the indispensable components of the diet, such as certain of the amino-acids, which result from the digestion of the proteins."

It would appear then, from the foregoing, that the terms suggested by McCollum are logical and, furthermore, are being used by a number of writers in their articles bearing on this subject.

VALUE OF EGGS, BUTTER AND MILK.

For growing children, invalids, convalescents and the sick, it is absolutely necessary that the diet include these two essentials. The next question, then, is what are the best sources for them? The best sources for the first or fat-soluble A are whole milk, butter fat and egg-yolk fat. The vegetable fats and oils such as olive oil, cottonseed oil, peanut and cocoanut oils, do not furnish this valuable component of the diet and, furthermore, the body fats are not important sources of the fat-soluble A. The value of milk, butter fat and egg yolk is, therefore, emphasized and added importance given to these foods.

Previous to the investigations of the men already quoted, it was considered that one food was as good as another and that the main object and function of the fats was to build up the fatty tissue and furnish energy. It was not until it was found that the substitution of butter fat for pure lard supplied an essential required for growth, that the high nutritive and real value of butter fat was brought out. As McCollum tells us, the specific result of a lack of a sufficient amount of this substance in the diet is the development of a condition of the eyes, which appears to be rightly classed as a type of xerophthalmia. The eyes become swollen so badly that they are opened with difficulty, or not at all. The cornea becomes inflamed and unless the missing dietary essential is supplied blindness speedily results.

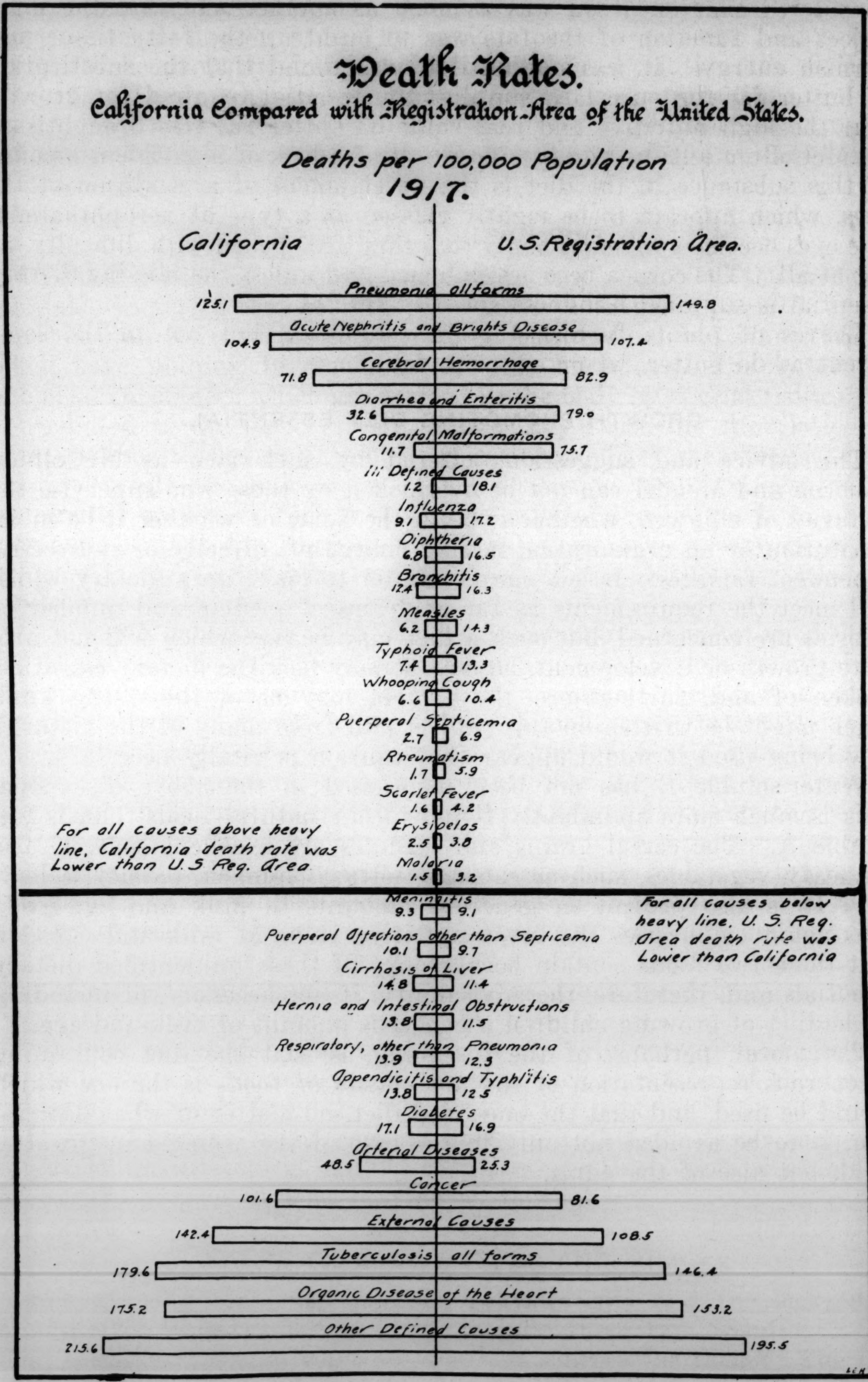
Leaves of plants furnish this fat-soluble A, but not to the same extent as do butter fat or egg-yolk fat.

GROWTH PROMOTING DIET ESSENTIAL.

The advice and suggestions offered by such men as McCollum, Osborne and Mendel can not be overlooked by those who supervise the dietaries of children, whether it be in the home or whether it be in an institution or an organization having charge of, directly or indirectly, dependent families. It is a simple matter to make up a dietary which will meet the requirements as far as grams of protein and number of calories are concerned, but such a diet may be one which will not promote growth or development, because it may lack the dietary essentials spoken of and, furthermore, the protein may be of the wrong kind. Much might be written on this subject and from many of the dietaries now being used it would appear that caution is vitally necessary.

Water-soluble B has not been mentioned in the above discussion. This is much more abundantly found in our natural foods than is fat-soluble A. The cereal grains and legumes are excellent sources, also the leafy vegetables, such as cabbage, lettuce, spinach, parsley, celery, etc. It is also present in generous amounts in milk and egg yolk. This again emphasizes the great nutritive value of milk and eggs, in that these two foods contain both groups of these unidentified dietary essentials and, therefore, the advisability, if not necessity, of including in the diet of growing children a generous amount of milk and eggs.

The moral, perhaps, of the foregoing, is that the diet containing a generous representation of the *five classes of foods* is the one which should be used, and that the one-sided diet, no matter of what description, is to be avoided not only in the case of the young and growing child, but also of the adult.



Death Rates.

California Compared with Registration Area of the United States.

COMPARISONS IN DEATH RATES.

California versus United States Registration Area.

On the opposite page is a chart showing comparisons between the 1917 death rates for principal causes of death for California and for the registration area of the United States. The most striking feature of the comparison lies in the lower death rates in California for the epidemic and communicable diseases, excepting tuberculosis. It is a recognized fact that the higher rate for the last-named disease in California is due solely to the large numbers of imported cases in persons who come west to die.

The lower rate in California for diarrhea and enteritis indicates that California is the best place for babies to grow up into useful American citizens. The California rate for influenza is almost half of that for the registration area and that for diphtheria is almost one-third. The measles death rate is less than half that for the registration area and the typhoid rate is almost one-half that for the registration area.

The lower death rates for the communicable diseases in California show that control measures are in use and it shows, furthermore, that direct results are accomplished through their use.

Since one day we must all die, it is obvious that if Californians' lives are extended through the prevention of early deaths from communicable diseases they must eventually reach their end through other causes. Therefore, as must be expected, the California death rates for heart and arterial diseases are considerably higher than are those rates for the entire registration area. The death rate for cancer is higher in California, showing the need for the adoption of the rational methods of prevention that have recently come to the front.

The most important lesson for California to draw from this chart lies in the need for preventing deaths in persons who are at the entrance to the middle life period.

More attention must be paid to the health of the man in his forties. Personal hygiene, diet and many kindred subjects have to do with the health of persons in this age group, but it is certain that the discovery and correction of defects in early life have a much closer relation to the health of the middle aged. Defective teeth, diseased tonsils, adenoids, etc., if not corrected in childhood may cause great discomfort, suffering, illness or death in the adult.

It would seem, therefore, that the best way to conserve the lives of Californians lies in the conservation of the lives of California children. The building of the health foundation in the child determines largely the health structure in the adult.

DEATH AND BLINDNESS CAUSED BY WOOD ALCOHOL.

Alarming Increase in Fatalities from Drinking Poisonous Product Reported During Recent Weeks by Health Authorities.

Owing to the heavy increase recently noted in the number of deaths and cases of blindness resulting from the drinking of wood alcohol by those ignorant of its dangers, the National Committee for the Prevention of Blindness, 130 East Twenty-second Street, New York, is sending broadcast special warnings of the tragic consequences which may follow the use of wood alcohol, denatured alcohol and medicated alcohol for beverage purposes.

Occasional cases of this nature have been occurring from time to time for many years, but since national prohibition went into effect, there has been an alarming increase in all sections of the country due to the preparations of drinks in which wood alcohol has been used or in some cases where it has been taken straight.

The harmful action of this poison comes not only from taking it internally, but may likewise be induced by breathing its fumes, and by absorption through the mucous membranes of the body. Its effect is usually noticeable very shortly after exposure. Within a few hours after drinking, acute headache is noted, usually accompanied by violent attacks of vomiting, body pains, extending over the region of the kidneys, and excessive dizziness. Vision may become impaired, total blindness occur, and death itself result.

WOOD ALCOHOL.

The wood alcohol used in the United States is obtained chiefly from the destructive distillation of wood—hard wood, birch, beech, maple, oak, elm and alder being those most frequently used. The chief uses to which it is put are for the denaturing of grain alcohol; for various purposes in lines of common manufacture (especially as a solvent in the preparation of shellac, varnish, dyes, etc.) as an ingredient in medical and pharmaceutical preparations; in the chemical industries and as a fuel and illuminant.

Only within recent years has wood alcohol become so dangerous to life and sight. Formerly it was a dark, bad-smelling, bad-tasting fluid which no one was tempted to drink. Later, a process was developed by which this color, smell and taste are removed. Wood alcohol, when purified in this way, looks, smells and tastes like grain alcohol, and may thus be easily substituted for it by unscrupulous persons.

DENATURED ALCOHOL.

In 1906, Congress, following the lead of European countries, enacted a law permitting the general use of a tax-free industrial (denatured) domestic alcohol in order to stimulate industrial purposes for which the high cost of grain alcohol was prohibitive. Denatured alcohol usually consists of ninety per cent grain alcohol and ten per cent wood alcohol, thus rendering it unfit for drinking. It is being increasingly substituted for wood alcohol in many industrial uses, to eliminate the great dangers attendant upon the use of the latter.

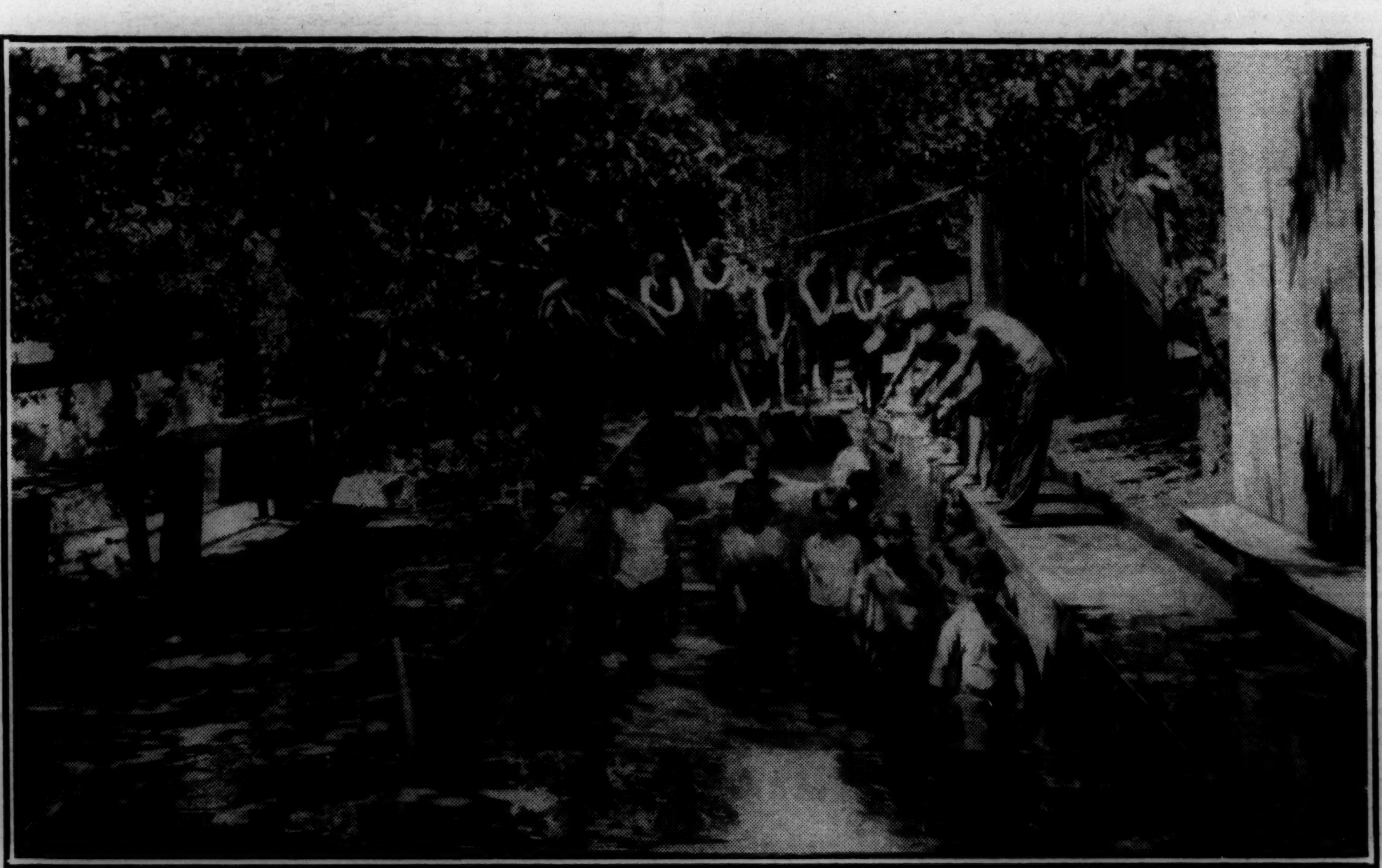
MEDICATED ALCOHOL.

Pharmacists who hold permits and have given bond are allowed to medicate alcohol and sell it for nonbeverage purposes in quantities not exceeding one pint, provided they first medicate it in accordance with any one of nine formulas specified by the Commissioner of Internal Revenue, U. S. Treasury Department. Carbolic acid, formaldehyde and bichloride of mercury are the chief of these denaturing agents. The container of such medicated alcohol must bear a "poison" label. The sale by pharmacists of medicated alcohol for industrial purposes is prohibited. It is sold chiefly for rubbing purposes.

In spite of these regulations and precautions some persons are using these poisons for drinking purposes, even at times completely disregarding the "poison" label which may have appeared on the bottle. In other instances, the victims have been ignorant of the dangers of that which they were using, the beverage having been prepared by others and sold under false pretenses or under some misleading name. When the original manufacturer of mixtures of this nature can be apprehended he has been, in many instances, subjected to severe punishment by the courts.

WARNING.

One teaspoonful of wood alcohol taken internally is sufficient to cause total blindness, a larger quantity often causes death. If you value your eyesight or your life, never use wood alcohol, denatured alcohol or medicated alcohol for drinking purposes. Pass this knowledge on if you would assist in reducing the fatalities which are occurring from this cause.



Children at the Sacramento County Tuberculosis Association's Summer Camp at Colfax did not lack facilities for healthful recreation.

MONTHLY BULLETIN
CALIFORNIA STATE BOARD OF HEALTH

Devoted to the Prevention of Sickness and Death

Entered as second-class matter, August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894. Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 27, 1918.

Sent free, on request, to any citizen of California.

WILFRED H. KELLOGG, M.D., Secretary . . . Executive Officer
GUY P. JONES, Assistant to the Secretary . . . . Editor

Food is of greater importance today than ever before in the memory of man. Interest in securing the greatest values in the purchase of foods is universal. Every family in America is interested in the price, quality, and nutritional value of foodstuffs. Food experts and dietitians have for many years preached the gospel of the human body's need for protein, fats and carbohydrates. Scientific methods in the selection and preparation of foods are also decidedly in vogue. The teaching of domestic science in the schools has greatly stimulated this work. Investigations undertaken by the U. S. Public Health Service and other agencies have shown that the lack of balanced rations has considerable to do with the development of several diseases which, in the past, have been considered as communicable. Pellagra is one of these, and it was not until the United States Public Health Service investigations into the cause of this disease were completed that definite knowledge concerning its etiology was available. More recent investigations by nutrition experts have brought vitamines to the forefront in the public eye. One can scarcely pick up a book on foods or nutrition without running across the word "vitamine." Few laymen have any idea as to what the term means, nor do they have any conception of the important role that vitamines play in the diet. For this reason Prof. M. E. Jaffa, consulting nutrition expert of the State Board of Health, was asked to prepare an article in explanation of vitamines. There is published in this number of the Bulletin "Vitamines and Their Synonyms" by Professor Jaffa. The reading of this article will no doubt prove a source of valuable information to many persons who, at the present time, have no clear idea relative to the meaning of this important scientific term.

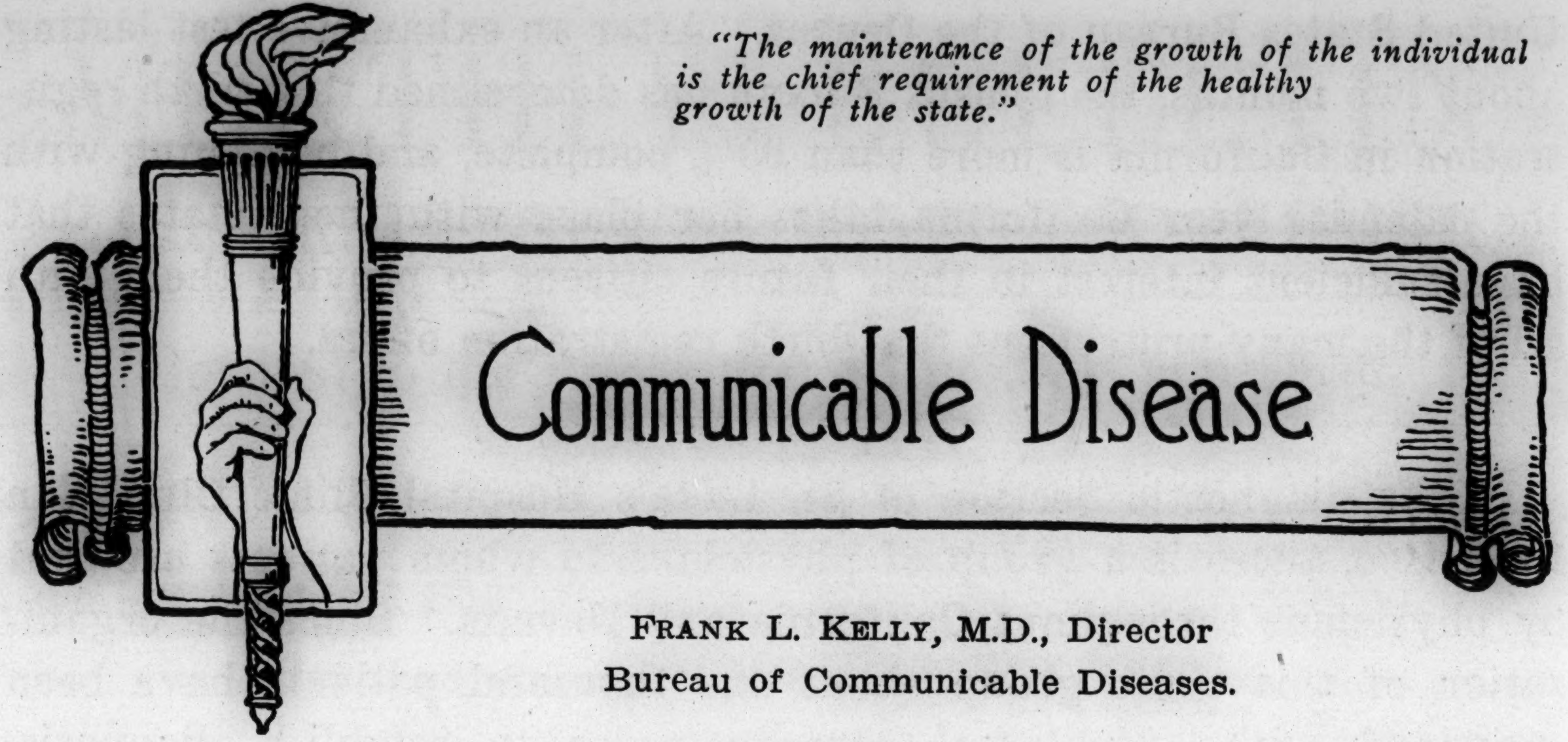
California has been admitted to the birth registration area of the United States Bureau of the Census. After an exhaustive test lasting about two months, the Census Bureau has determined that birth registration in California is more than 90% complete, and beginning with the calendar year California takes her place with those states that have sufficient interest in their future citizens to provide them with all of the many protections that birth registration offers.

In the diagnostic Section of St. Luke's Hospital Clinic Club, San Francisco, there is a group of physicians to whom patients are sent by physicians throughout California and Nevada. Since the organization of this clinic group about one thousand patients have been examined with exceptional care in order to establish diagnosis. Every piece of scientific apparatus available has been used and these patients have had the benefit of the experience of not one man, but of many men. It is interesting to know that the members of the group at the end of a year's work are impressed with the importance of public health procedure in the prevention of disease. The following paragraph is from their report:

> "All of the members of the section have been impressed by the advanced stages of disease frequently noted in our investigations. It is becoming more and more evident to us that successful therapy must be applied at an earlier date in many pathologic states encountered. In other words, preventative medicine seems to us a form of endeavor full of promise. When individuals wisely care for their physical well being as they care for their automobiles, much unnecessary suffering will be avoided in later years."

The trustees of the Matadero Mosquito Abatement District, Palo Alto, have made an unusual request of the people residing in the district. They ask that every time an individual in the district is bitten by a mosquito or sees a mosquito that he report the fact immediately, giving the exact location to the superintendent of the district. Co-operation such as this has been instrumental in producing results in the Matadero District, as many of the residents have informed the trustees that they had had no trouble with mosquitoes this year. People residing in the district believe that the results obtained have thoroughly justified the financial expenditures. During the year ending June 30 about $5000 was spent. This includes the purchase of an automobile, a skiff, sprays and various other equipment as well as the salary of the superintendent, wages of laborers, rent, etc.

"The maintenance of the growth of the individual is the chief requirement of the healthy growth of the state."



Communicable Disease

Frank L. Kelly, M.D., Director
Bureau of Communicable Diseases.

Parasitology.

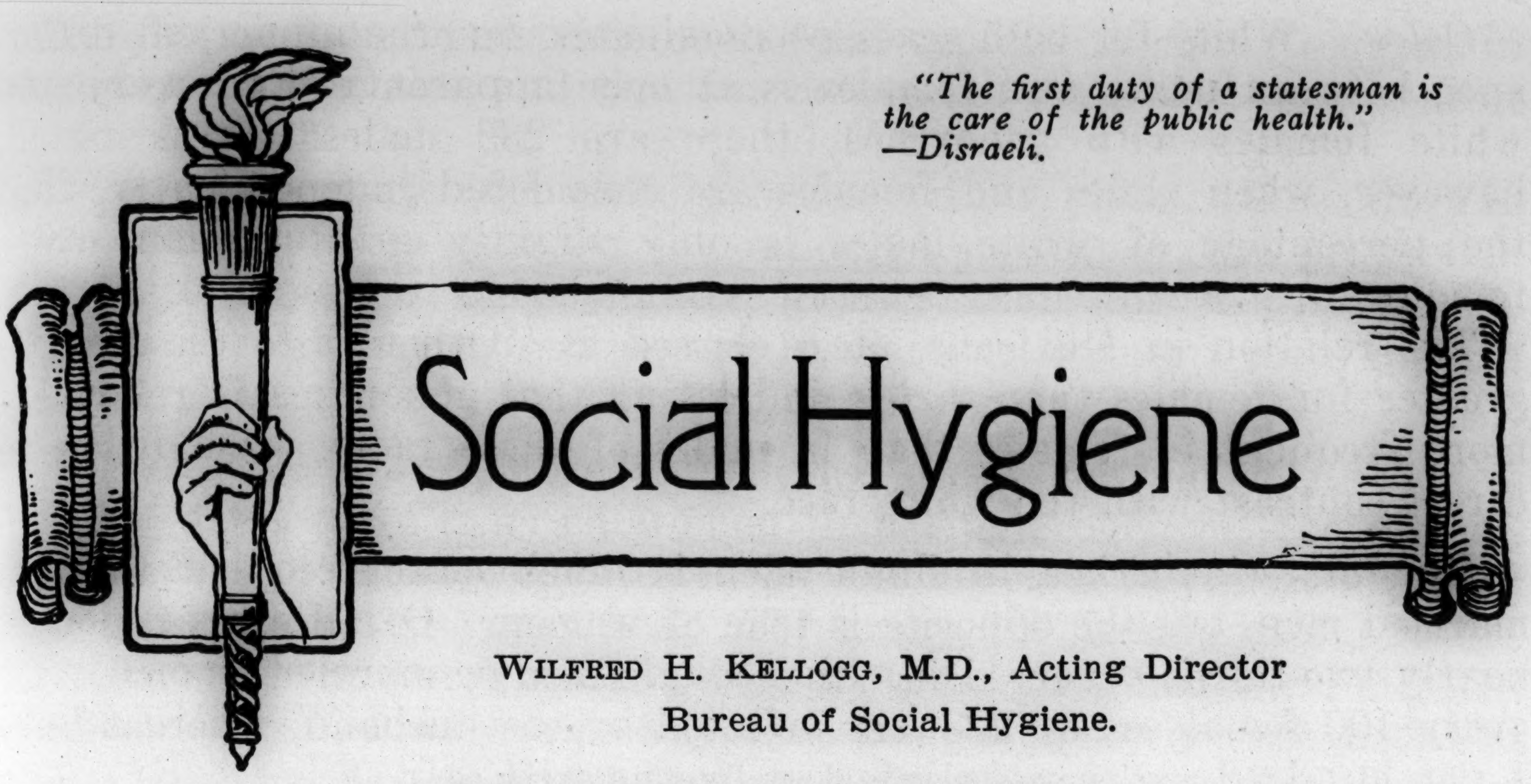
By **William W. Cort**, Consulting Helminthologist.

The majority of the examinations summarized below are the result of investigations being made in the rice-growing districts in the vicinity of Willows. However, among the specimens submitted for examination from miscellaneous sources, one case of Oxyuris incognita (?), one case of Oxyuris vermicularis, and two cases of hookworm were detected. The last two are of particular interest since they illustrate one of the sources of introduction of hookworm. The infected individuals were natives of Georgia in which state they resided until coming to California two years ago. All indications are that in both cases the disease was contracted in Georgia and brought into this state.

Examinations Made in the Laboratory of Parasitology During Month of July, 1919.

	Positive	Negative	Total
Miscellaneous examinations for intestinal worms	----------	102	102
Trichuris trichiura	6	----------	6
Ascaris lumbricoides	5	----------	5
Trichostrongylus orientalis	3	----------	3
Hookworm	3	----------	3
Oxyuris vermicularis	1	----------	1
Oxyuris incognita (?)	1	----------	1
Total examinations for worms	19	102	121
Miscellaneous examinations for intestinal protozoa	----------	92	92
Entamœba coli	15	----------	15
Entamœba nana	3	----------	3
Giardia	4	----------	4
Total examinations for protozoa	22	92	114
Total examinations	41	194	235

"The first duty of a statesman is the care of the public health."
—Disraeli.



Social Hygiene

Wilfred H. Kellogg, M.D., Acting Director
Bureau of Social Hygiene.

Venereal Diseases in California.

By L. E. Ross, Morbidity Statistician.

The following observations with reference to analyses of venereal diseases in California reported during the year ending June 30, 1919, are based upon the presumption that the reporting of venereal diseases for 1918 reflects the true relationship between these diseases in California. Whether or not this is the case is a matter of conjecture. It is of course known that all cases are not reported. What proportion of existing cases are reported and to what extent one is reported more completely than the other, is unknown.

Between the ages of 17 and 30 gonorrhea is more common than syphilis; but at all other ages syphilis is the more frequent.

Gonorrhea is the more frequent in the white race. In all other races reported, syphilis is the more common.

Married, widowed and divorced people have syphilis more frequently than gonorrhea. Single people have gonorrhea more frequently than syphilis.

Domestics, soldiers, sailors, food handlers and laborers have syphilis more often than gonorrhea. Clerical workers and people engaged in industrial occupations and trades have gonorrhea more frequently than syphilis.

In commercial and clandestine prostitution, gonorrhea is contracted oftener than syphilis. Where husband or wife is the source, syphilis is transmitted more frequently than gonorrhea.

So far, as has been stated in the reports, gonorrhea is acquired more frequently under intoxication than is syphilis. The same is true of unemployed persons. Relatively few persons were infected while either intoxicated or unemployed.

GONORRHEA.

Age Groups. Twenty-one to thirty is the age group of greatest frequency for both males and females. Out of each 100 cases reported in males 50 were acquired during this period, and out of each 100 cases in females 44 were acquired between these ages.

The distribution shows that in general females acquire the disease much earlier in life than males and with less frequency during the later periods.

Color. White for both sexes predominates, but the numerical difference between males and females is at once apparent. For every 100 white females with gonorrhea, there are 233 males. It is noted, however, when males and females are considered independently, that the percentage of white males is only slightly greater than white females.

The relation in Mexicans, etc. (classed as "Other") to the total is greater for females than males, indicating that gonorrhea is relatively more frequent in females than in males of these races, a condition in direct contrast with the white race.

Marital. Gonorrhea in single men is much more frequent than in married men, but the opposite is true of women. Of all cases reported nearly two-thirds occurred in either single men or married women. Of every 100 female cases, 22 were infected by the husband, whereas only 1 per hundred males were infected by the wife.

The frequency in widowers is both relatively and numerically much less than in widows, and the same is true of divorcees, the women of these classes contracting gonorrhea more frequently than the men.

Occupation. In these occupations open to both sexes, "clerical" shows relatively less for men than for women. There is a large number of venereally infected persons handling food, the females predominating proportionately, but not numerically. If it may be considered that "domestic," which includes housewife, is a food-handling occupation, in every 100 cases there are 22 handling food to be used by other people.

Among males, miscellaneous occupations show the greatest frequency, with "industrial" and "trades" next. Among females, "domestic," which includes housewife, shows the greatest frequency.

Source. The proportion of female cases where the disease is given as having been acquired in commercial prostitution is much smaller for women than for men. Clandestine prostitution holds first place for frequency for both men and women.

It is interesting to note the large number of women infected by their husbands—much larger than the number of men infected by the wife. For every male infected by the wife, there are 9 females infected by the husband.

Intoxicated. Judging from the figures as given, few cases were contracted during intoxication. This question has not been answered in many cases.

Unemployed. Relatively few persons were unemployed at time of infection. The failure to answer the question in so many cases makes accurate deduction impossible, but judging from the results as given, unemployment is not especially conducive to infection.

SYPHILIS.

Age Groups. There is a difference here in the age of greatest frequency. It appears that females acquire the disease on an average ten years earlier in life than males. It also seems that comparatively few females are infected during the later period of life, whereas the males show considerable frequency up to the age of 51 and over.

The distribution shows that congenital syphilis is more frequent in females than in males, and that for both sexes congenital acquirement is more frequent than during early adolescence.

Color. For every 100 white females with syphilis, there are 148 white males. When each sex is considered separately, the proportion for white males is only slightly greater than for white females. Syphilis is relatively more frequent in males of "other" races than in females. The opposite condition holds with gonorrhea.

Marital Condition. More single men than married men acquire syphilis. But more married women than single ones get the disease. The proportion of women infected by the husband is almost identical in both syphilis and gonorrhea. For every 100 female cases, 20 are infected by the husband, whereas only 1 per hundred males are infected by the wife. Widows contract syphilis more frequently than widowed men. Divorced women become infected more frequently than divorced men.

The distribution shows for syphilis, as for gonorrhea, that the larger part of the cases are in single men and married women. In every 100 cases, 51 are in this class. For every 100 cases in single women, there are 181 cases in married women. With reference to males, for every 100 cases in single men there are only 67 cases in married men.

Occupation. The distribution of syphilis in both males and females follows closely that for gonorrhea, except that male "laborers" shows greater frequency than "industrial" and "trades."

Here again is noted the large number of sufferers who are handling foodstuffs. In every 100 cases, 30 are handling food for others. The relative number of "domestic" for syphilis is much greater than for gonorrhea. In the majority of these cases the occupation is that of housewife.

Source. It would appear from the distribution that more men are infected in commercial and clandestine prostitution than women. For both sexes "unknown" is given more frequently than any other. Congenital syphilis is much more frequent in females than in males, as is also shown in the age distribution.

The number of women infected by the husband is very much greater than the number of men infected by the wife. The relation of this source to gonorrhea is almost identical. One-fifth of the female cases are infected by the husband. Less than 1 per hundred males are infected by the wife.

Intoxicated. Carelessness in answering this question on the card practically destroys the value of the figures. It appears that with syphilis as with gonorrhea relatively few cases were intoxicated at time of exposure.

Unemployed. As in the case of gonorrhea, the number of males unemployed at time of infection is comparatively small, the same being true of females.

As little attention has been paid to this question, the statistical value of the compilation is destroyed. It would appear that unemployment has little bearing on infection.

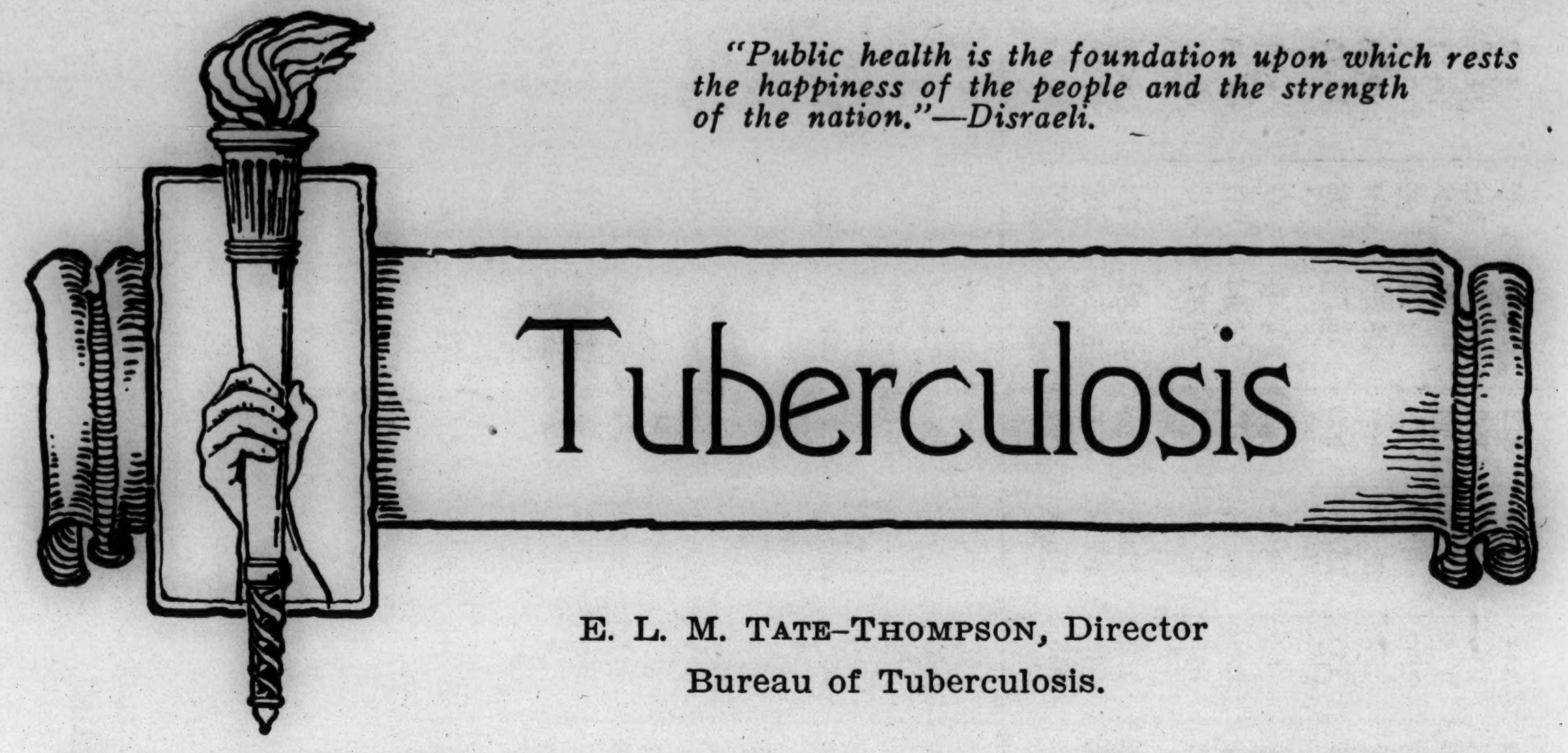
CALIFORNIA STATE BOARD OF HEALTH.

Analysis of Venereal Diseases Reported for Year Ending June 30, 1919.

	Total cases		Gonorrhea		Syphilis		Gonorrhea						Syphilis					
							Total		Male		Female		Total		Male		Female	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Totals	4,162	100.00	2,144	51.51	2,018	48.49	2,144	100.00	1,480	100.00	664	100.00	2,018	100.00	1,191	100.00	827	100.00
Age—																		
1 to 12	140	3.36	25	.60	115	2.76	25	1.17	5	.34	20	3.01	115	5.70	47	3.95	68	8.22
13 to 16	151	3.63	75	1.80	76	1.83	75	3.50	10	.68	65	9.79	76	3.77	26	2.18	50	6.05
17 to 20	587	14.11	439	10.55	148	3.56	439	20.48	277	18.72	162	24.49	148	7.33	67	5.63	81	9.79
21 to 30	1,673	40.20	1,032	24.80	641	15.40	1,032	48.13	736	49.73	296	44.58	641	31.76	335	28.13	306	37.12
31 to 40	928	22.29	396	9.51	532	12.78	396	18.47	323	21.82	73	10.99	532	26.36	360	30.23	172	20.80
41 to 50	374	8.99	91	2.19	283	6.80	91	4.24	67	4.53	24	3.61	283	14.02	194	16.29	89	10.76
51 and over	221	5.31	45	1.08	176	4.23	45	2.10	35	2.36	10	1.51	176	8.72	138	11.59	38	4.59
Not stated	88	2.11	41	.98	47	1.13	41	1.91	27	1.82	14	2.11	47	2.34	24	2.00	23	2.77
Color—																		
White	3,585	86.14	1,892	45.46	1,693	40.68	1,892	88.25	1,324	89.46	568	85.54	1,693	83.89	1,009	84.72	684	82.71
Black	197	4.74	86	2.07	111	2.67	86	4.01	61	4.12	25	3.77	111	5.50	55	4.62	56	6.77
Yellow	27	.64	11	.26	16	.38	11	.51	8	.54	3	.45	16	.79	12	1.00	4	.48
Other	277	6.65	115	2.76	162	3.89	40	1.87	25	1.69	15	2.26	162	8.03	96	8.06	66	7.98
Not stated	76	1.83	40	.96	36	.87	40	1.87	25	1.69	15	2.26	36	1.79	19	1.60	17	2.06
Marital—																		
Married	1,464	35.17	636	15.28	828	19.89	636	29.66	303	20.47	333	50.15	828	41.03	428	35.94	400	48.37
Single	2,140	51.42	1,282	30.80	858	20.62	1,282	59.79	1,056	71.35	226	34.04	858	42.52	637	53.48	221	26.72
Widowed	209	5.02	72	1.73	137	3.29	72	3.36	28	1.89	44	6.63	137	6.79	39	3.27	98	11.85
Divorced	140	3.36	53	1.27	87	2.09	53	2.47	12	.81	41	6.17	87	4.31	27	2.27	60	7.26
Not stated	200	5.03	101	2.43	108	2.60	101	4.72	81	5.48	20	3.01	108	5.35	60	5.04	48	5.00
Occupation—																		
Domestic	763	18.33	289	6.94	474	11.39	289	13.48	8	.54	281	42.32	474	23.49	0	.00	474	57.32
Soldier or sailor	199	4.78	142	3.41	57	1.37	142	6.62	142	9.59	0	.00	57	2.82	57	4.79	0	.00
Clerical	285	6.84	182	4.37	103	2.47	182	8.49	108	7.30	74	11.14	103	5.10	59	4.95	44	5.32
Food	321	7.72	189	4.54	132	3.18	189	8.82	112	7.57	77	11.60	132	6.54	97	8.14	35	4.23
Laborer	518	12.45	206	4.95	312	7.50	206	9.61	206	13.92	0	.00	312	15.46	312	26.20	0	.00
Industrial	558	13.41	325	7.81	233	5.60	325	15.16	321	21.69	4	.60	233	11.55	231	19.40	2	.24
Other	1,392	33.44	743	17.85	649	15.59	743	34.65	554	37.43	189	28.46	649	32.16	413	34.68	236	28.54
Not stated	123	3.03	68	1.64	58	1.39	68	3.17	29	1.96	39	5.88	58	2.88	22	1.84	36	4.35

Source—																		
Commercial prostitute	860	20.67	516	12.40	344	8.27	516	24.07	470	31.76	46	6.94	344	17.05	312	26.20	32	3.87
Clandestine prostitute	1,178	28.31	868	20.86	310	7.45	868	40.49	658	44.46	210	31.63	310	15.36	192	16.12	118	14.27
Husband or wife	343	8.24	165	3.96	178	4.28	165	7.70	17	1.15	148	22.29	178	8.82	10	.84	168	20.31
Congenital	150	3.61	14	.34	136	3.27	14	.64	3	.20	11	1.66	136	6.74	54	4.54	82	9.92
Unknown	1,172	28.16	388	9.32	784	18.84	388	18.10	217	14.66	171	25.75	784	38.85	460	38.62	324	39.18
Not stated	459	11.01	193	4.63	266	6.38	193	9.00	115	7.77	78	11.74	266	13.18	163	13.68	103	12.45
Intoxicated—																		
Yes	199	4.78	130	3.12	69	1.66	130	6.06	110	7.43	20	3.01	69	3.42	54	4.53	15	1.81
No	2,513	60.38	1,479	35.54	1.034	24.84	1,479	68.98	1,162	78.51	317	47.74	1,034	51.24	667	56.00	367	44.38
Not stated	1,450	34.84	535	12.85	915	21.99	535	24.96	208	14.06	327	49.25	915	45.34	470	39.47	445	53.81
Unemployed—																		
Yes	386	9.27	227	5.45	159	3.82	227	10.59	133	8.99	94	14.16	159	7.88	105	8.82	54	6.53
No	2,358	56.66	1,412	33.93	946	22.73	1,412	65.86	1,129	76.28	283	42.62	946	46.88	639	53.65	307	37.12
Not stated	1,418	34.07	505	12.13	913	21.94	505	23.55	218	14.73	287	43.22	913	45.24	447	37.53	466	56.35

"Public health is the foundation upon which rests the happiness of the people and the strength of the nation."—Disraeli.



Tuberculosis

E. L. M. TATE-THOMPSON, Director
Bureau of Tuberculosis.

The month has been interrupted by vacations, but arrangements are being made, following the Bureau's letter which was sent to all of California's discharged tuberculous soldiers, to classify them and to aid as much as possible their placement, after recovery, into positions suitable for people who have recovered from tuberculosis.

A survey is being made, which to date has disclosed some interesting information: First, that a great number of the men discharged did not have tuberculosis, as no evidence of tuberculosis is shown to have existed at any time. This proves absolutely the contention of the Board of Health last year, that it was an injustice to label the discharge papers of every man as suffering with chronic tuberculosis. The director went to Washington a year ago last April to have the cause of disability left from the discharge papers. This was done, with the result that many men are now appearing at the Public Health Service Relief Stations who did not know why they were discharged, who were examined and showed no signs of tuberculosis after they were put under observation at the U. S. Marine Hospital. Second, the U. S. Public Health Service Hospital at Palo Alto has at present about two hundred fifty California boys, some of whom have made remarkable progress toward permanent recovery and others who are invalided for life. They are aided in securing their compensation and advised regarding vocational training.

Questionnaires have been sent to all the sanatoria, public, semi-philanthropic and private, to learn how many beds can be placed at the government's disposal. This will enable us to locate the man near his family, will save considerable expense to his county, and will probably hasten his recovery. It is unfortunate that the education of so many of the boys is so limited, as it makes the opportunity for proper placing when they recover somewhat limited. To offset this, following the survey, the Bureau is urging the U. S. Public Health Service to establish some ungraded classes for the men, so they may brush up before leaving the sanatorium.

The Preventorium of the State Association in Marin County is serving as an example to all the neighbors' children. The other afternoon a young girl who helps there told the nurse in charge, "After I finished my work and thought how all those children rested every afternoon, I tried it myself." The Preventorium deserves special comment on the results, which will be reported later.

"Health is the essential factor in productiveness, prosperity, and happiness, and hence in the advancement of civilization."—Sir Frederick Treves.

Sanitary Engineering

C. G. Gillespie, C.E., Director
Bureau of Sanitary Engineering.

The special work of the month related to a survey of the swimming pools of the state, the framing of regulations governing the construction and operation of same, the beginning of a study of bathing-suit disinfection, inspection of canyon and camp-site conditions in the mountains as a result of summer travel, further inspection of sewerage conditions in Yosemite, and garbage collection and disposal in Oakland.

* * *

Swimming pools, as they now exist from one end of the state to the other, represent a frightfully low sanitary standard. Conditions are far worse than was anticipated when the legislation pertaining to their sanitation was enacted in 1917. The recent survey showed that it would be hopeless to raise the sanitary standard by compromise measures, and the regulations as adopted by the Board at its meeting on August 2 are therefore for model swimming pools. The new pools constructed according to these standards will hardly be more costly than those built in the past, but the cost of remodeling old pools in the end will usually be considerable. However, it is likely that the swimming pool business will benefit by the greater popularity and security enjoyed by the public, accruing from greater cleanliness and sanitation.

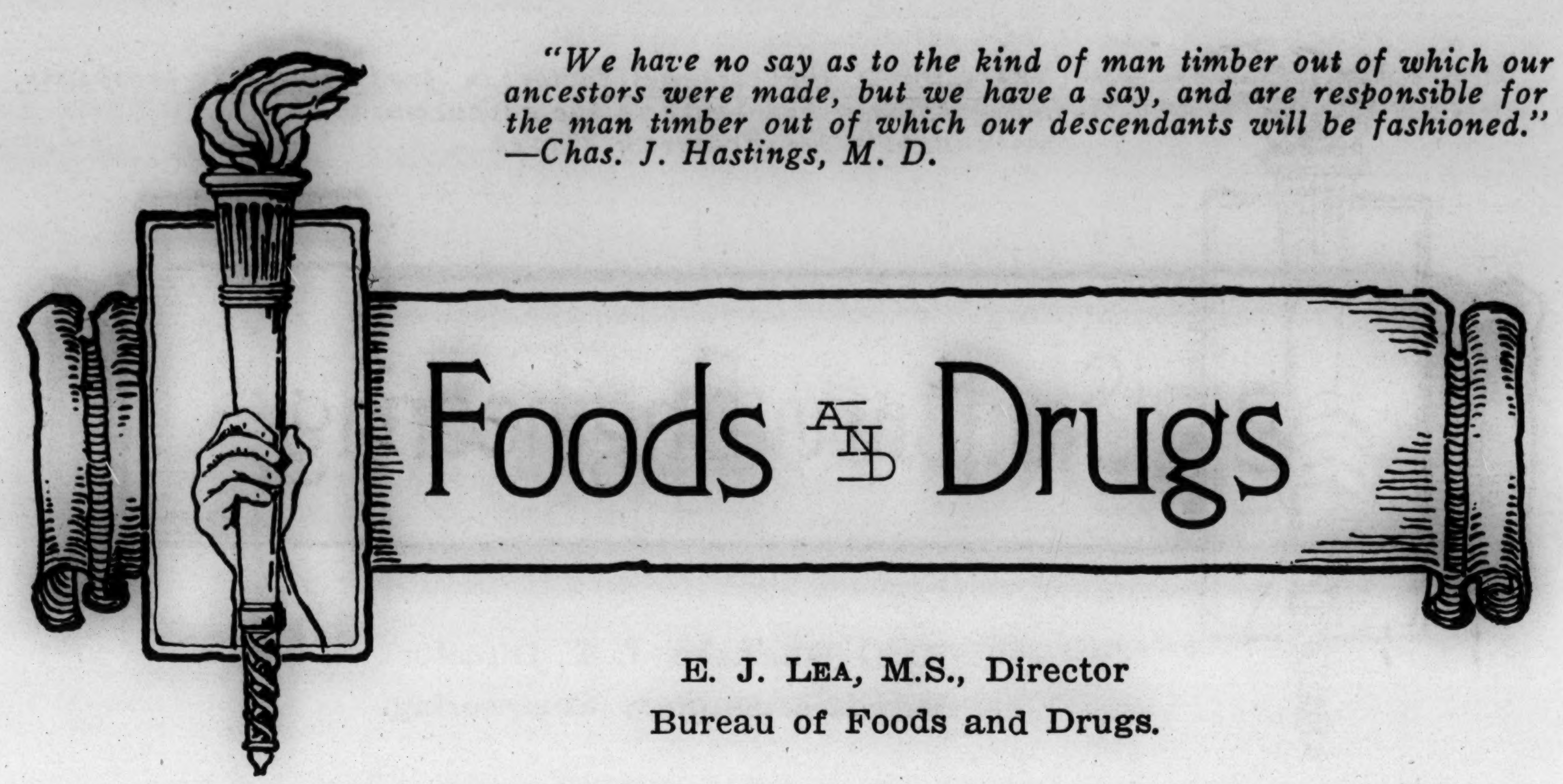
* * *

Within a few months examples of the "sanitary swimming pool" will be found here and there throughout the state, to attract the public away from the insanitary pools and plunges of an earlier day, which before long will go the way of the "old oaken bucket," the common drinking cup and the roller towel.

* * *

Canyon sanitation has slipped backward this summer as a result of a tremendous increase in the seasonal exodus of pleasure seekers to the high mountains. The newer devotees have apparently not learned the lesson of the mountains to "leave your camp as you would like to find it."

"We have no say as to the kind of man timber out of which our ancestors were made, but we have a say, and are responsible for the man timber out of which our descendants will be fashioned."
—Chas. J. Hastings, M. D.



Foods and Drugs

E. J. Lea, M.S., Director
Bureau of Foods and Drugs.

A total of 210 samples were received at the laboratory during the month. The 118 official samples collected by the inspectors consisted of beef extract, cheese, chocolate, curtisola, eggs, flavoring extracts, dried fruits, honey, ice cream, chopped meats and sausage, milk, milkoline, noodles, oils, oysters, sardines, soft drinks, syrups, tomato products, vinegar, and drugs consisting of samples of aspirin, bay rum, camphorated oil, citrate of magnesia, elixirs, nerve tonic, potassium iodide, "Seven Herbs Compound," sweet oil, and tonic drink.

Eighteen unofficial samples were collected of apple cider, apricots, cream, elixir, gin, herring, nut-cero, nut loaf, milk, sardines, syrup, tomato products.

Eight unofficial samples of cold storage materials consisting of eggs and nut meats were collected.

Sixty-six samples were received from state institutions. These consisted of baking powder substitute, baking soda, butter, catsup, cocoa, coffee substitute, cornstarch, flour, fruit, oils, peanut butter, rice, salt, sardines, spices, string beans, syrups, tea, vinegar, ammonia, bran, caustic soda, chloride of lime, lye, meat meal, and soap.

CASES REFERRED TO DISTRICT ATTORNEYS.

The following cases were referred by the State Board of Health at the July meeting:

San Francisco—Canton Noodle Factory, egg noodles; Republic Noodle Factory, egg noodles.

Huntington Park—Mrs. J. H. Webber, egg noodles.

Oakland—Liberty Soda Works, ginger ale and lemon soda.

Los Angeles—Brazelle Aquazone Co., aquazone.

Valley Springs—N. Costa (Guarantor), Valley Springs Mineral Water.

Calexico—Adolph Kessling, pork sausage and chopped meat.

CONVICTIONS UNDER FOOD AND DRUGS ACTS REPORTED DURING JULY, 1919.

Berkeley—Quality Inn, sour strawberries and sour peas, fined $20.

Oakland—S. Fleggs, moldy and fermented prunes, fined $5; F. C. Koerber, moldy and fermented prunes, fined $5; H. Lekas, mislabeled strawberry syrup, fined $10; C. D. Mooney, mislabeled lemon extract, fined $5; G. B. Ratto and Company, rain damaged prunes, fined $5; V. Santi, substitution of Cognac and gin, fined $10.

Pittsburg—Louis Vossos, decomposed frozen oranges, fined $5; L. Fontana, frozen oranges, fined $5.

San Francisco—Santa Rosa Market, sulfur dioxid in chopped meat, fined $10; Canton Noodle Factory, noodles below standard, fined $10; Ligure Sausage Factory, decomposed tomato paste, fined $10; Tivoli Paste Company, decomposed tomato paste, O. R. 6 months; Beck's Pharmacy, substitution of argyrol solution, O. R. 30 days; Union Rice Mills, adulteration of rice, fined $5; O. Vannucci and Company, frozen oranges, O. R. 6 months; Reed Pickle Works, artificially colored vinegar, fined $10.

San Jose—Mead's, Inc., substitution of syrup and milk below standard, fined $20.

ARTICLES OF FOOD CONDEMNED.

Berkeley—Beans, moldy, 712 sacks.

Chico—Eggs, decomposed, 14 cases.

Manteca—Tomato paste, decomposed, 275 cases.

San Francisco—Frozen egg meats, moldy, 308 pounds; prunes, rain damaged, 15,930 pounds; apricots, wormy, 10,788 pounds.

San Jose—Green peppers, decomposed, 9 tins.

MATERIAL IN COLD STORAGE JULY 1, 1919.

Apple butter	300	lbs.
Beer	158¼	bbls.
Beer, Zesto	5,600	lbs.
Bulbs	5,886	lbs.
Butter	2,395,075	lbs.
Candy	3,930	lbs.
Cereals	40,343	lbs.
Ceroline	400	lbs.
Cheese	2,371,879	lbs.
Chocolate	1,000	lbs.
Cider	100,660	lbs.
Cocoanut	309	lbs.
Compound	16,680	lbs.
Condiments—		
Horseradish	152,887	lbs.
Pepper	28	pkgs.
Pickles	17,600	lbs.
Cream	1,435	lbs.
Eggs—		
Fresh	6,176,722	doz.
Frozen	411,506	lbs.
Fish—		
Cured	1,055,380	lbs.
Fresh	654,137	lbs.
Frozen	22,233	lbs.
Pickled	185,600	lbs.
Shell	52,290	lbs.
Flour	10,898	lbs.
Fruit—		
Canned	1,118	lbs.
Dried	657,576	lbs.
Fresh—		
Apples	496,184	lbs.
Apricots	86,437	lbs.
Apricots	34	cases
Berries	191,059	lbs.
Grape fruit	21,850	lbs.
Miscellaneous	627,555	lbs.
Miscellaneous	96	cases
Oranges	351,897	lbs.
Fruit juice	178,754	lbs.
Fruit peel	42,225	lbs.
Fruit pulp	39,706	lbs.
Furs	2,432	lbs.
Ice cream	3,400	lbs.
Lard	198,124	lbs.
Macaroni	200	lbs.

Meals—		
Corn	1,275	lbs.
Oat	2,000	lbs.
Meat—		
Fresh	942,852	lbs.
Frozen	918,667	lbs.
Pickled	74,889	lbs.
Salt	2,567	lbs.
Sausage	2,516	lbs.
Milk—		
Condensed	169,850	lbs.
Condensed	64	pkgs.
Goat	10,000	lbs.
Mincemeat	19,341	lbs.
Molasses	64	bbls.
Miscellaneous materials	761,097	lbs.
Nucoa	18,310	lbs.
Nuts	204,272	lbs.
Nut meats	335,413	lbs.
Oils—		
Cottonseed	4,480	lbs.
Olive	412,500	lbs.
Oleo	19,618	lbs.
Olives	1,800	lbs.
Plant leaves	6,880	lbs.
Poi	207	lbs.
Potatoes	9,323,163	lbs.
Poultry—		
Miscellaneous	1,143,908	lbs.
Turkeys	28,162	lbs.
Rice	17,370	lbs.
Rugs	522	lbs.
Sauerkraut	29,722	lbs.
Syrup	19,600	lbs.
Trees	1,046	lbs.
Vegetables—		
Asparagus	600	lbs.
Beans	700	lbs.
Beans, green	2,100	lbs.
Beets	492,774	lbs.
Beets, green	17	cases
Cabbage	1,500	lbs.
Celery	3,811	lbs.
Chile	159,102	lbs.
Miscellaneous	11,465	lbs.
Mushrooms	7,145	lbs.
Onions	15,540	lbs.
Parsnips	12	cases
Peas	780	lbs.
Rhubarb	550	lbs.
Squash	350	lbs.
Sweet potatoes	873	lbs.

BRIEF SUMMARY OF VIOLATIONS UNDER THE PURE FOOD AND DRUGS ACT AND MATERIAL DESTROYED FOR THE FISCAL YEAR ENDING JUNE 30, 1919.

Citations issued July, 1918, to June 30, 1919	697
Cases referred to district attorneys	436
Cases prosecuted	291
Result of prosecution—	
Fined	211
Fines suspended	13
Guilty—placed on probation	56
Dismissed—outlawed, etc.	11
Fines collected	$4,360 00
Fines imposed but suspended	250 00

Apple butter	2,535	lbs.
Be-No	3	cases
Butter	55	lbs.

Candy	2,250	lbs.
Cheese	3,491	lbs.
Cocoanut	2,600	lbs.
Eggs—		
Frozen	1,205	lbs.
Incubator	1,770	doz.
Chinese	3,000	doz.
Fish—		
Canned	16,718	cans
Clams	20	lbs.
Herrings	54	lbs.
Fruit—		
Miscellaneous	18,323	cans
Oranges and lemons	1,979	boxes
Prunes	167,291	lbs.
Gelatin	637	lbs.
Mayonnaise salad dressing	1,087	lbs.
Meat	4,272	lbs.
Milk	290	lbs.
Nuts—		
Almonds	10	lbs.
Peanuts	2,050	lbs.
Walnuts and walnut meats	34,527	lbs.
Olives	1,330	lbs.
"Quick Whip"	5	lbs.
Syrup	435	gals.
*Tomato products—		
Catsup	295,703	lbs.
Catsup	30,268	bots.
Paste	210,380	cans
Puree	1,306,882	lbs.
Sauce	404,194	cans
Tomatoes	145,890	lbs.
Vegetables—		
Beans, fava	66,490	lbs.
Beans, string	255	cases
Chard	360	cans
Chili peppers	23,300	lbs.
Mushrooms	160	lbs.
Vinegar	29	gals.

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*In addition to the above, there are more than 500,000 cans of tomato products from the 1918 crop still under investigation.

"Public health is purchasable."—**Biggs.**

Vital Statistics

GEORGE D. LESLIE, Director
Bureau of Vital Statistics.

Births, Deaths and Marriages for June.*

State, Totals and Annual Rates. The following table shows for California as a whole, the birth, death and marriage totals for the current month of the year to date in comparison with corresponding figures for last year, as well as the annual rates per 1,000 population represented by the totals for the current month and the year to date. The rates are based on an estimated midyear population of 3,221,301 for California in 1919, the estimate having been made by the United States Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rate per 1000 Population, for Current Month and Year to Date, for California: June.

Month or period	Total		Annual rate per 1,000 population, 1919
	1919	1918	
June—			
Births	4,561	4,778	17.2
Deaths	3,337	3,486	12.6
Marriages	4,167	3,463	15.7
January to June—			
Births	26,542	27,020	16.6
Deaths	26,086	22,225	16.3
Marriages	16,821	15,989	10.5

The above figures for June, 1919, show a decrease in both births and deaths in a comparison with June, 1918, but an increase of 704 marriages.

Length of Residence. The length of residence in California for the 3,337 decedents in June was as follows: Under 1 year, 234, or 7.0 per cent; 1 to 9 years, 521, or 15.6 per cent; 10 years and over, 1,430, or 42.9 per cent; life, 930, or 27.9 per cent; and unknown, 222, or 6.6 per cent.

County Marriage Totals. The counties showing the highest marriage totals for the month were as follows: Los Angeles, 1,067; San Francisco, 709; Alameda, 494; Orange, 179; Sacramento, 164; San Diego, 140; Santa Clara, 132; Fresno, 129; San Bernardino, 105; San Joaquin, 101; Riverside, 80; Sonoma, 62; Kern, 59; and Santa Barbara, 53.

County Birth and Death Totals. Exclusive of stillbirths in both cases, the birth and death totals for the month were as follows for the leading counties, arranged in decreasing order of birth registration:

County	Births	Deaths	County	Births	Deaths
Los Angeles	1,107	828	San Bernardino	109	86
San Francisco	724	592	Kern	100	50
Alameda	476	297	Tulare	98	41
Fresno	201	113	Sonoma	79	60
Santa Clara	163	114	Santa Barbara	78	38
Sacramento	148	108	Orange	76	44
San Joaquin	144	106	Contra Costa	63	28
San Diego	124	111	Riverside	58	54

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*The present report is for the month preceding but two. This order must be followed because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the next preceding month is completed.

City Birth and Death Totals. Birth and death totals, exclusive of stillbirths, are presented similarly for the principal California cities below:

City	Births	Deaths	City	Births	Deaths
Los Angeles	726	498	Long Beach	65	34
San Francisco	724	592	San Jose	53	33
Oakland	300	172	Bakersfield	52	26
Sacramento	109	92	Alameda	48	16
San Diego	92	78	Pasadena	46	46
Stockton	81	70	San Bernardino	37	38
Fresno	77	36	Santa Barbara	34	20
Berkeley	76	39	Vallejo	32	13

Causes of Death. The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1000. Total Deaths for Current and Preceding Month, for California: June.

Cause of death	Deaths: June, 1919	Proportion per 1,000	
		June, 1919	May, 1919
All causes	3,337	1,000.0	1,000.0
Typhoid fever	15	4.5	2.2
Malarial fever	3	9	----------
Smallpox	----------	----------	----------
Measles	----------	----------	.3
Scarlet fever	2	.6	.3
Whooping-cough	5	1.5	.8
Diphtheria and croup	20	5.9	5.6
Influenza	55	16.5	45.8
Other epidemic diseases	22	6.6	3.4
Tuberculosis of lungs	407	122.0	122.3
Tuberculosis of other organs	62	18.6	19.1
Syphilis and gonorrhea	21	6.2	5.9
Cancer	292	87.5	89.7
Other general diseases	121	36.3	36.3
Meningitis	25	7.4	3.9
Other diseases of nervous system	321	96.2	105.5
Diseases of circulatory system	567	170.0	187.6
Pneumonia and broncho-pneumonia	137	41.1	52.3
Other diseases of respiratory system	50	15.0	16.6
Diarrhea and enteritis, under 2 years	123	36.9	20.8
Diarrhea and enteritis, 2 years and over	42	12.6	9.6
Other diseases of digestive system	182	54.5	43.3
Bright's disease and nephritis	207	62.0	70.6
Childbirth	32	9.5	7.6
Diseases of early infancy	128	38.4	33.7
Suicide	83	24.9	18.3
Other violence	279	83.6	68.1
All other causes	136	40.8	30.4

The above table shows that there were 567 deaths, or 17.0 per cent of all, from diseases of the circulatory system in the month of June; and 469, or 14.0 per cent from the various forms of tuberculosis.

The total number of deaths from epidemic diseases was 122, or 3.6 per cent.

Sex, Race and Nativity. The proportion of the sexes among the 3,337 decedents in June was: Male, 1,792, or 53.7 per cent; and female, 1,545, or 46.3 per cent.

The race distribution was: White, 3.160, or 9.4 per cent of all; Japanese, 70; Negro, 47; Chinese, 43; and Indian, 17.

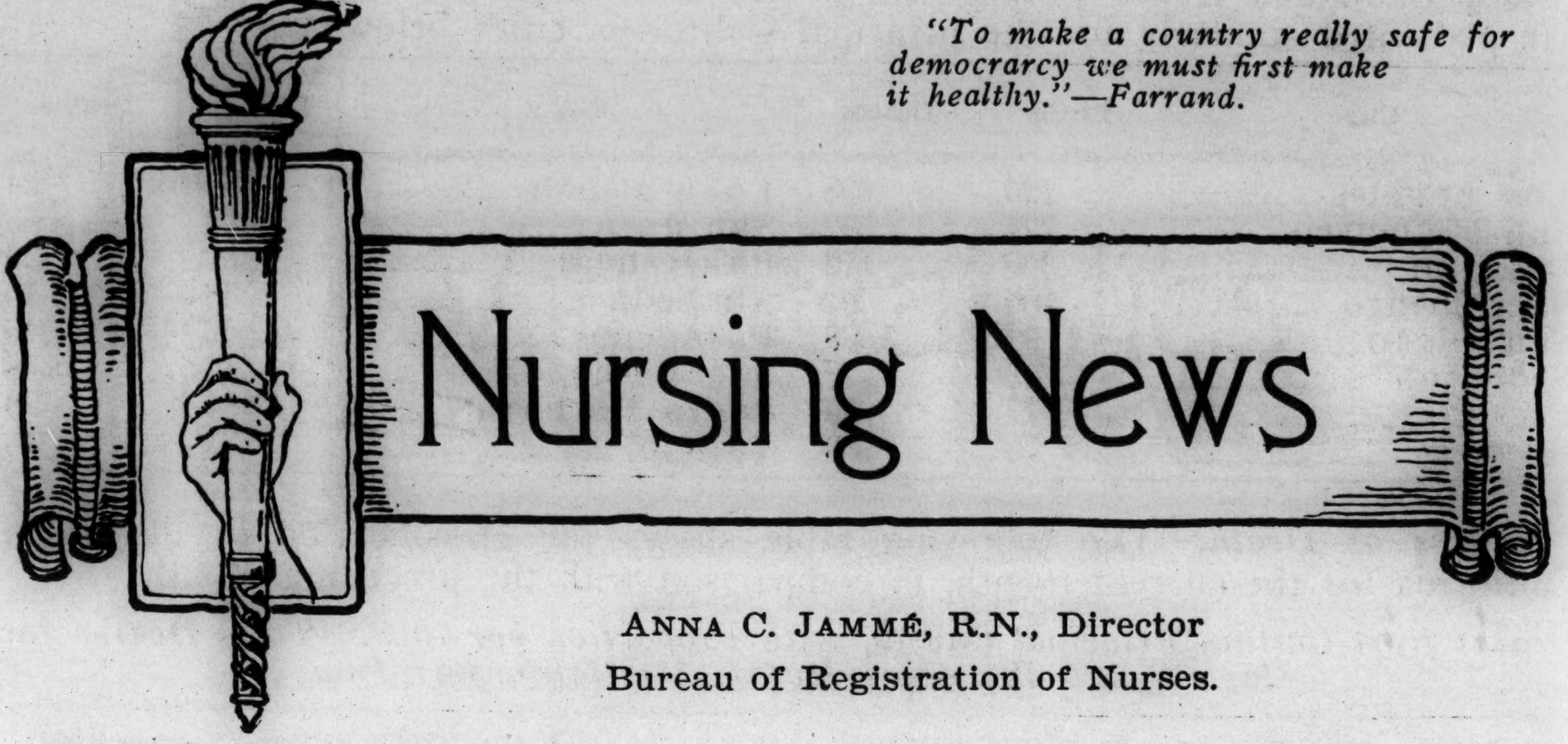
The 3,160 white decedents were classified by nativity as follows: California, 871, or 27.6 per cent; other states, 1,155, or 36.6 per cent; foreign, 1,048, or 33.1 per cent; and unknown, 86, or 2.7 per cent.

Infant Mortality. There were 353 deaths for children under 1 year, which were distributed by age in months as follows: Under 1 month, 148, or 41.9 per cent; 1 to 2 months, 61, or 17.3 per cent; 3 to 5 months, 68, or 19.3 per cent; and 6 to 11 months, 76, or 21.5 per cent.

In certain cities the deaths under 1 year were as follows: Los Angeles, 58; San Francisco, 39; and Oakland, 15.

The 353 deaths under 1 year in comparison with the 4561 live births reported show an infant mortality ratio of 77 per 1,000.

"To make a country really safe for democrarcy we must first make it healthy."—Farrand.



Nursing News

Anna C. Jammé, R.N., Director
Bureau of Registration of Nurses.

One hundred thirty-five nurses were granted the certificate of registration at the regular monthly meeting of the Board held on August 2. These certificates were obtained on examination taken in June by nurses who were graduated from accredited schools of nursing in this state and other states.

A printed list of all nurses registered in California is now available and will be sent on request. The list is useful to physicians, county boards of supervisors, boards of education, and other organizations and individuals employing or appointing nurses. The last legislature created laws governing the employment of nurses in public health service which require that the nurse shall be a registered nurse.

The University of California summer session at Berkeley and Los Angeles closed on August 8. This work marks some advance in the preparation of teachers of nurses and nursing work in this state. It is but a beginning and should lead to a regular course covering at least two semesters in the University. The need of teachers is great and at the present time there is no place on this coast, or, for that matter, in any state west of Chicago, where our nurses may be prepared for the special work of teaching in schools of nursing and many nurses must bear the expense of going to Chicago or New York for this preparation. However, we view this summer's work given by Miss Douglass, Assistant Inspector of Schools of Nursing, and Mrs. Elizabeth Hodges of the Polytechnic High School of Los Angeles, as but a step toward the realization of a permanently established course of teachers of nurses.

Other work given during the summer session which received a large share of interest from the students was Dr. Herbert F. True's course in Health Inspection and Diagnosis. Fifty students enrolled in this course, the majority of them being nurses. Dr. True, Director of the Health and Development Department of Los Angeles, made this course in public health intensely practical and of great value to all, especially so to school nurses. Of further interest to nurses may be included the course in Corrective Physical Training given by Dr. S. R. Lokrantz, Supervisor of Corrective Physical Training in Los Angeles city schools, also courses given by Dr. E. B. Hoag, Medical Director of the Juvenile Court in Los Angeles and Director of Child Welfare in Pasadena: one a study of the general principles of public health; the other dealing with the physical and mental growth of children from early school age to early maturity.

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